



Original communication

The social profile of victims of suicide in major Greek correctional facilities



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ABSTRACT

Introduction: Suicide rates in correctional institutions have been increasing during the last decades. The reasons for this increase remain unclear, yet a lot of contradictory explanations were stated: the increase might be due to mass incarceration and overcrowding of small cells resulting in high psychosocial stress, changes in psychiatric health policy which might have transferred the care for patients from mental hospitals to custodial institutions, or legislation changes that might have led to a selection of offenders at higher risk (e.g. offenders who committed high violent offences or suffered from mental disorders without being referred to psychiatric hospitals). In Greece the situation is not described in details, at least during the last few years. By law, every death of prisoner is subject to medicolegal investigation.

Materials & methods: Our study consists of the meticulous research of the data records of major Greek correctional facilities, for the time period 1999–2010. An official permission was obtained from the Hellenic Ministry of Justice, which gave us access to these restricted records. Data was also collected from the Piraeus Forensic Service, from the Department of Pathological Anatomy of the University of Athens and finally from our own records. Measures were taken to respect the anonymity of the cases. Data was collected for the social, penal, medical history as well as for the medicolegal investigation.

Results – conclusions: A total of 339 cases were collected, only 259 of which had available full data records, due to weaknesses in the prison records. From the 259 cases, 70 incidents of suicide were collected. Victims of suicide in major Greek correctional facilities, appear to fulfill the expected profile, as in the general population.

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1. Introduction

Suicide rates in correctional institutions have been increasing during the last decades.

It is widely accepted that stressful life events, such as incarceration may precipitate the onset of a series of events, finally leading to suicide.¹

There has been little interest in whether suicidal ideation and intent has been documented by non-medical prison staff (reports of attempted suicide, suicide threats, self-harm), and whether these signs of suicidality had the consequence of adequate intervention efforts.²

The principle that prisoners are entitled to the same level of health care as that provided in the wider community is vastly accepted in enlightened societies and prison systems.³ It is exactly

this principle that makes our effort to understand the profile of the suicide victims inside correctional facilities.

In the past, several factors have been suggested as predisposing to increased suicide risk. Among these factors are: self-injurious behavior,⁴ previous psychiatric disorder,⁵ young age,⁶ history of substance use,⁷ personal and family variables (e.g. previous or current convictions for violent criminal offences, dysfunctional families, etc.)⁸ and finally the initial days after incarceration.^{9–11}

2. Materials & methods

Our study mainly was aimed to describe the situation in major Greek correctional facilities. After obtaining a permission from the Hellenic Ministry of Justice, access was granted to the prison records (penal, medical) and to the records of the Forensic Services that always, according to Law,¹² realize the medicolegal investigation, required for every prison death.

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There are five categories of facilities in the Greek correctional system: judicial prisons, closed prisons, rural prisons, correctional institutions for adolescents and finally therapeutic institutions.¹³ The Korydallos complex houses the largest judicial prison and two of the three therapeutic institutions.

For the purposes of our study we decided to select three correctional facilities. Namely the Korydallos Prison, because it houses nearly all detainees awaiting trial, the St Paul Prisoner's Hospital, because it is the only one of its kind in the whole country, finally the Halkida Prison, in order to further increase and diversify our sample.

For purposes of statistical analysis, crimes were classified according to the Hellenic Penal Code,¹⁴ pharmaceutical agents were classified according to the anatomical therapeutic chemical (ATC)¹⁵ system and finally diseases were classified according to the International Classification of Diseases, (ICD-10).¹⁶

Statistical analysis was performed with SPSS v18.0 statistical software (IBM). Possible differences of baseline characteristics between suicide victims and the rest of the population study were investigated by chi-square statistic, whereas one way analysis of variance was employed to test the respective distributional differences of age, age of death and duration of imprisoning.

3. Results

The total number of prisoners in Korydallos Prison for the time period of our study, according to data provided from the Hellenic Ministry of Justice was 22,126. The number of prisoners for the same period for St Paul Prisoner's Hospital and the Halkida Prison were 776 and 2,361, respectively. Therefore, the total number of prisoners in the specific correctional facilities, for the time period of our study, was 25,263.

The total number of suicides within the specific time period examined, is 70 out of 259 cases of death inside the examined correctional facilities (suicide incidence 27%). The baseline characteristics of our study are summarized in Table 1, as shown below. It is quite evident that those who tend to commit suicide significantly more often than other prisoners, are of Eastern European & Asiatic origin ($p = 0.004$), unemployed ($p = 0.003$), single ($p < 0.0001$) without children ($p = 0.008$). Those who tend to commit suicide less frequently compared to other prisoners are university graduates ($p = 0.008$) and the mentally ill ($p = 0.037$).

Furthermore, it appears that prisoners who have a history of drug abuse are more likely to commit suicide ($p = 0.042$) (Table 1). Finally, prisoners who do not receive any pharmaceutical treatment appear to be more prone to suicide ($p < 0.0001$) (Table 1).

It appears that those who have been imprisoned two times tend to commit suicide more often, but we must note that this finding is, statistically, of borderline significance ($p = 0.065$).

In Graph 1, the association of various crimes committed and of suicide is demonstrated. Moreover, in Graph 2, the distribution of criminals among suicide cases is demonstrated. As it is easily understood those who have been convicted of drug related crimes are statistically more prone to suicide, while those who are convicted of forgery are not. Those convicted of sexual crimes appear not to commit suicide at all ($p = 0.040$).

Concerning the results of Graph 1, one must keep in mind that all of the prisoners of our sample have committed at least one crime, with a great percentage of them having committed more than one.

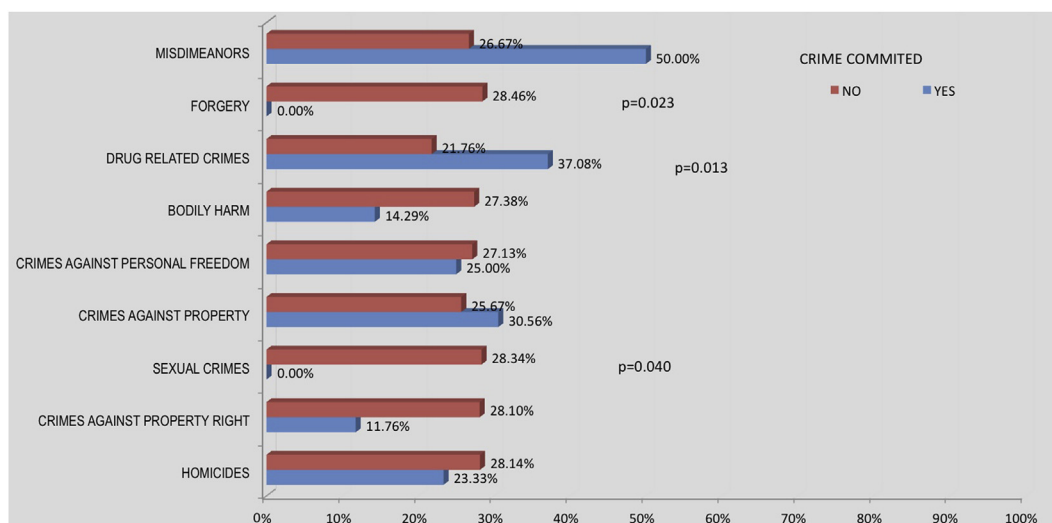
Each crime (yes/no), was tabulated as in two by two table against suicide (yes/no). Suicide frequencies were considered on the basis of crime conviction or not. Therefore, it is not correct to sum up the percentages of Graph 1, which of course add up far above 100%. In the hypothetical case that each prisoner was convicted of a single crime, those percentages would sum up to 100%.

Table 1
Baseline characteristics of study by suicide (yes/no).

		Suicide		p-value
		Yes	No	
		N	N	
		%	%	
Gender	Male	68	185	0.663
		26.9%	73.1%	
	Female	2	4	
		33.3%	66.7%	
Nationality	Eastern Europe	13	13	0.004
		50.0%	50.0%	
	Asia	9	10	
		47.4%	52.6%	
	Africa	1	7	
		12.5%	87.5%	
	Western Europe	4	6	
		40.0%	60.0%	
	Greek	43	153	
		21.9%	78.1%	
	Blue Collar	51	124	0.003
		29.1%	70.9%	
Profession	White Collar	8	53	
		13.1%	86.9%	
	Unemployed	11	12	
		47.8%	52.2%	
Family status	Single	36	48	<0.0001
		42.9%	57.1%	
	Divorced	7	36	
		16.3%	83.7%	
	Married	25	83	
		23.1%	76.9%	
	Widow	2	21	
		8.7%	91.3%	
Children	Yes	27	100	0.008
		21.3%	78.7%	
	No	41	67	
		38.0%	62.0%	
Education	Illiterate	8	17	0.008
		32.0%	68.0%	
	<6yrs	19	77	
		19.8%	80.2%	
	<9yrs	19	37	
		33.9%	66.1%	
	<12yrs	14	14	
		50.0%	50.0%	
	<14yrs	4	12	
		25.0%	75.0%	
	>14yrs	2	21	
		8.7%	91.3%	
Number of imprisonments	1	60	157	0.065
		27.6%	72.4%	
	2	7	9	
		43.8%	56.3%	
	3	3	23	
		11.5%	88.5%	
History of drug abuse	Yes	18	28	0.042
		39.1%	60.9%	
	No	52	161	
		24.4%	75.6%	
Receiving pharmaceutical treatment	Yes	28	42	<0.0001
		40.0%	60.0%	
	No	134	55	
		70.9%	29.1%	
Psychiatric disorder	Yes	18	75	0.037
		19.4%	80.6%	
	No	52	114	
		31.3%	68.7%	

A very interesting finding of our study is that the mentally ill prisoners do not commit suicide more often than those who are not ($p = 0.037$).

From the statistical analysis it is quite evident (Table 2) that the prisoners who actually commit suicide are imprisoned for the first



Graph 1. Suicide frequency by crimes.

time at a younger age (34 years) compared to those prisoners who do not commit suicide (51.3 years) ($p < 0.0001$).

Naturally, the age of death for those who commit suicide (35.8 years) is smaller than for those who do not (55.1 years) ($p < 0.0001$) (Table 2). According to our results the mean time interval between the first imprisonment and the death for those who commit suicide (19.2 months) is less than for those who do not (43.1 months) ($p = 0.009$) (Table 2).

4. Discussion

It is evident that the above-mentioned results, with the exception of a few, do not cause any surprise, but the authors would like to underline that such an analysis is performed for Greek correctional facilities for the first time.

It is important to understand the limitations of our study, which exist because of our sample. For practical reasons we had to limit our sample to three correctional facilities, the Korydallos Prison (which actually houses the majority of all inmates awaiting trial and the Prisoner's Hospital (which receives prisoners requiring medical care nationwide). Finally, the Halkida Prison was studied as well, in order to increase and diversify our sample.

According to our findings, there is no evident statistical relation between prisoners convicted of misdemeanors and suicide. On the

other hand, prisoners convicted of drug related crimes present an important statistical relation to suicide.

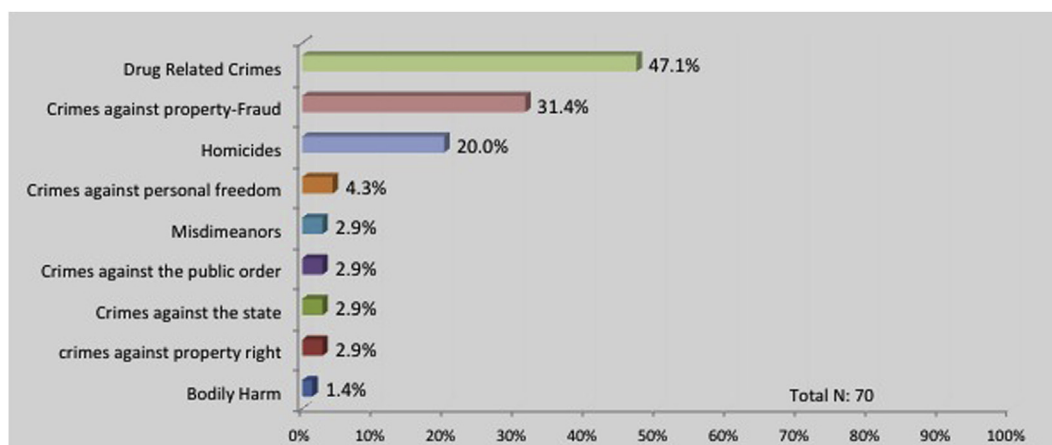
The majority of suicide cases, in our study, concerned prisoners convicted of drug related crimes, of homicide and of crimes against property.

The finding of our study that the mentally ill prisoners do not commit suicide more often than those who are not, has actually a double meaning. Either some of those who committed suicide were not timely diagnosed with psychiatric disease, or they were diagnosed but the diagnosis was never entered in their medical records. Both of these explanations offer little excuse as it is evident that both of them should not occur under normal circumstances.

This finding is inconsistent with results of other studies realized by other scientists in Greek prisons, which actually punctuate the higher prevalence of psychiatric disorders is higher than that of the general population.¹⁷

According to other studies the leading indicators of inmate risk are among others, depression, low self-esteem, threatening suicide and finally nonlethal injury. However, most inmates with mental illness do not commit or even attempt suicide.¹⁸

On the other hand, the finding that those prisoners who have a history of drug abuse statistically tend to commit suicide more often than those who don't, is quite consistent with results of many other studies. The substance use inside correctional facilities is widely accepted and documented.^{19–22}



Graph 2. Distribution of criminals among suicide cases.

Table 2

Age of first imprisonment, death by suicide.

	Suicide	N	Mean	95% CI	Min	Max	p-value
Age of 1st imprisonment (YRS)	No	189	51.3	49.2 53.4	19.0	83.0	<0.0001
	Yes	70	34.0	31.4 36.7	15.0	68.0	
Age of death (YRS)	No	189	55.1	52.9 57.3	19.5	87.7	<0.0001
	Yes	70	35.8	33.2 38.4	15.2	68.6	
Months from imprisonment to death	No	189	43.1	32.5 53.6	0.00	565.0	0.009
	Yes	70	19.2	12.1 26.3	0.10	159.3	

In line with our study the time interval between reception of the prisoners in the correctional facility and the day of suicide was 19.2 days, while other authors cite the relevant time period to be 7 days or less for approximately 1/3 of their sample.^{23,24}

The findings can be summarized accordingly as follows: statistically, a prisoner has greater tendency to commit suicide if he is male, of Eastern European origin, single with no children, convicted for a drug related crime, with history of drug abuse in the past and finally if he does not receive any medications at all.

A number of risk factors for inmate suicides is stated in the scientific literature. These include the initial days after incarceration, overcrowding and isolation, long sentences after high violent offences, psychiatric disorders, alcohol and drug-abuse and repression.²

In general one must keep in mind that Coroners' records are an accessible source of information on suicides. The use of standardized forms by coroners would assist studies of factors associated with suicide and potentially provide a representative source of information relevant to suicide prevention.²⁵

Understanding the social profile of possible suicide victims, is actually the first step toward the prevention inside correctional facilities and should be promptly evaluated by the relevant authorities.

Ethical approval

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Conflict of interest

There are no perceived conflict of interests regarding the publication of this article.

References

- Nock MK, Borges G, Bromet EJ, Cha CB, Kessler RC, Lee S. Suicide and suicidal behavior. *Epidemiologic Reviews* 2008;**30**:133–54.

- Fruehwald S, Frottier P, Matschnig T, Eher R. The relevance of suicidal behaviour in jail and prison suicides. *European Psychiatry: The Journal of the Association of European Psychiatrists* 2003;**18**:161–5.
- Sakelliadis EI, Spiliopoulou CA, Papadodima SA. Health care provision in prisons: a review on European and international guidelines. *Acta Clinica Belgica* 2009;**64**:399–405.
- Sakelliadis EI, Papadodima SA, Sergeantanis TN, Giotakos O, Spiliopoulou CA. Self-injurious behavior among Greek male prisoners: prevalence and risk factors. *European Psychiatry: The Journal of the Association of European Psychiatrists* 2010;**25**:151–8.
- Baillargeon J, Penn JV, Thomas CR, Temple JR, Baillargeon G, Murray OJ. Psychiatric disorders and suicide in the nation's largest state prison system. *The Journal of the American Academy of Psychiatry and the Law* 2009;**37**:188–93.
- Bird SM. Changes in male suicides in Scottish prisons: 10-year study. *The British Journal of Psychiatry: The Journal of Mental Science* 2008;**192**:446–9.
- Palacio C, García J, Zapata C, Lopez G, Ortiz J, et al. Identification of suicide risk factors in Medellin, Colombia: a case-control study of psychological autopsy in a developing country. *Archives of Suicide Research: Official Journal of the International Academy for Suicide Research* 2007;**11**:297–308.
- Camilleri P, McArthur M. Suicidal behaviour in prisons: learning from Australian and international experiences. *International Journal of Law and Psychiatry* 2008;**31**:297–307.
- Backett SA. Suicide in Scottish prisons. *The British Journal of Psychiatry: The Journal of Mental Science* 1987;**151**:218–21.
- Dooley E. Prison suicide in England and Wales, 1972–87. *The British Journal of Psychiatry: The Journal of Mental Science* 1990;**156**:40–5.
- DuRand CJ, Burtka CJ, Federman EJ, Haycox JA, Smith JW. A quarter century of suicide in a major urban jail: implications for community psychiatry. *The American Journal of Psychiatry* 1995;**152**:1077–80.
- Law 2776/1999. *The Hellenic Parliament*. Athens, FEK A/2776/1999.
- Spinellis CD, Themeli O. Suicide in Greek prisons: 1977 to 1996. *Crisis* 1997;**18**:152–6.
- Law 4043/2012. *The Hellenic Parliament*, FEK A25/13-2-2012.
- Methodology WCCfDS. *The anatomical therapeutic chemical classification system with defined daily doses (ATC/DDD)*. WHO. updated 2003; cited 2012 20-6-2012; Available from: <http://www.who.int/classifications/atcddd/en/>; 2003.
- WHO. *International classification of diseases (ICD)*. cited 2012 20-5-2012; Available from: <http://www.who.int/classifications/icd/en/>; 2010.
- Fotiadou M, Livaditis M, Manou I, Kaniotou E, Xenitidis K. Prevalence of mental disorders and deliberate self-harm in Greek male prisoners. *International Journal of Law and Psychiatry* 2006;**29**:68–73.
- Pompili M, Lester D, Innamorati M, Del Casale A, Girardi P, Ferracuti S, et al. Preventing suicide in jails and prisons: suggestions from experience with psychiatric inpatients. *Journal of Forensic Sciences* 2009;**54**:1155–62.
- Hedrich D, Farrell M. Opioid maintenance in European prisons: is the treatment gap closing? *Addiction* 2012;**107**:461–3.
- Matsumoto T, Yamaguchi A, Asami T, Okada T, Yoshikawa K, Hirayasu Y. Characteristics of self-cutters among male inmates: association with bulimia and dissociation. *Psychiatry and Clinical Neurosciences* 2005;**59**:319–26.
- Zhang J, Xiao S, Zhou L. Mental disorders and suicide among young rural Chinese: a case-control psychological autopsy study. *The American Journal of Psychiatry* 2010;**167**:773–81.
- Burns KA. The top ten reasons to limit prescription of controlled substances in prisons. *The Journal of the American Academy of Psychiatry and the Law* 2009;**37**:50–2.
- Shaw J, Baker D, Hunt IM, Moloney A, Appleby L. Suicide by prisoners. National clinical survey. *The British Journal of Psychiatry: The Journal of Mental Science* 2004;**184**:263–7.
- O'Driscoll C, Samuels A, Zacka M. Suicide in New South Wales prisons, 1995–2005: towards a better understanding. *The Australian and New Zealand Journal of Psychiatry* 2007;**41**:519–24.
- Bennewith O, Hawton K, Simkin S, Sutton L, Kapur N, Turnbull P, et al. The usefulness of coroners' data on suicides for providing information relevant to prevention. *Suicide & Life-threatening Behavior* 2005;**35**:607–14.